Applicant's Reference: **ID01152 US**

Title of Invention: **Hepatitis C Virus NS3 Helicase Fragments**

Applicants:

Weber, Patricia C.
Reichert, Paul
Madison, Vincent S.
Wyss, Daniel
Yao, Nanhua
Liu, Dingjiang
Gesell, Jennifer

Sequence Listing Statement

The undersigned agent for applicant hereby declares that the information recorded on the diskette is identical in content to the information in the written Sequence Listing. The sequence listings do not go beyond the disclosure in the application as filed.

Sandy S. Zaradic, Ph.D.
Patent Agent

SEQUENCE LISTING

<110> Weber, Patricia C.
Reichert, Paul
Madison, Vincent S.
Wyss, Daniel
Yao, Nanhua
Liu, Dingjiang
Gesell, Jennifer

<120> Hepatitis C Virus NS3 Helicase Fragments

<130> ID01152 US

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<150> US 60/194,419
<151> 2000-04-04

<160> 16

<170> PatentIn Ver. 2.1

<210> 1
<211> 631
<212> PRT
<213> Hepatitis C virus

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             20                  25                  30

Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu Ala Thr Cys Ile
         35                  40                  45

Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly Thr Arg Thr Ile
     50                  55                  60

Ala Ser Pro Lys Gly Pro Val Ile Gln Met Tyr Thr Asn Val Asp Gln
 65                  70                  75                  80

Asp Leu Val Gly Trp Pro Ala Pro Gln Gly Ser Arg Ser Leu Thr Pro
                 85                  90                  95

Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala Asp
            100                 105                 110

Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser
        115                 120                 125

Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu
    130                 135                 140

Cys Pro Ala Gly His Ala Val Gly Leu Phe Arg Ala Ala Val Cys Thr
145                 150                 155                 160

Arg Gly Val Thr Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu Glu
                165                 170                 175

Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala
            180                 185                 190
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Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
195 200 205

Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
210 215 220

Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
225 230 235 240

Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
245 250 255

Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
260 265 270

Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
275 280 285

Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
290 295 300

Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu
305 310 315 320

Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile
325 330 335

Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys
340 345 350

Ala Ile Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys
355 360 365

His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu
370 375 380

Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile
385 390 395 400

Pro Thr Asn Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr
405 410 415

Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val
420 425 430

Thr Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr
435 440 445

Thr Thr Leu Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg
450 455 460

Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu
465 470 475 480

Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr Asp
485 490 495

Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala Glu Thr Thr Val Arg
500 505 510

Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu Pro Val Cys Gln Asp His
515 520 525

Leu Glu Phe Trp Glu Gly Val Phe Thr Gly Leu Thr His Ile Asp Ala

530 535 540

His Phe Leu Ser Gln Thr Lys Gln Ser Gly Glu Asn Phe Pro Tyr Leu
545 550 555 560

Val Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala Gln Ala Pro Pro Pro
565 570 575

Ser Trp Asp Gln Met Trp Lys Cys Leu Ile Arg Leu Lys Pro Thr Leu
580 585 590

His Gly Pro Thr Pro Leu Leu Tyr Arg Leu Gly Ala Val Gln Asn Glu
595 600 605

Val Thr Leu Thr His Pro Ile Thr Lys Tyr Ile Met Thr Cys Met Ser
610 615 620

Ala Asp Leu Glu Val Val Thr
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<210> 2
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<212> PRT
<213> Artificial Sequence

<220>
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<210> 3
<211> 148
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<213> Hepatitis C virus

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Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
20 25 30

Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
35 40 45

Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
50 55 60

Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
65 70 75 80

Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
85 90 95

Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
100 105 110

Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
115 120 125

Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu
130 135 140

Ala Thr Ala Thr
145

<210> 4
<211> 142
<212> PRT
<213> Hepatitis C virus

<400> 4
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Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile
20 25 30

Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His Ser
35 40 45

Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu Gly Ile
50 55 60

Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr
65 70 75 80

Asn Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr Gly Phe
85 90 95

Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Ser Asp Gly Lys
100 105 110

Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg
115 120 125

Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg
130 135 140

<210> 5
<211> 288
<212> PRT
<213> Hepatitis C virus

<400> 5
Gly Ser His Met Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala
1 5 10 15

Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
20 25 30

Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
35 40 45

Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
50 55 60

Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
65 70 75 80

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Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
                85                  90                  95

Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
            100                 105                 110

Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
        115                 120                 125

Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu
    130                 135                 140

Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile
145                 150                 155                 160

Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys
                165                 170                 175

Ala Ile Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys
            180                 185                 190

His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu
        195                 200                 205

Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile
    210                 215                 220

Pro Thr Asn Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr
225                 230                 235                 240

Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Ser Asp
                245                 250                 255

Gly Lys Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr
            260                 265                 270

Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg
        275                 280                 285
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<210> 6
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<212> PRT
<213> Hepatitis C virus

<400> 6

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Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
             20                  25                  30

Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
         35                  40                  45

Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
     50                  55                  60

Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
 65                  70                  75                  80
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Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
                85   90   95

Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
            100   105   110

Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
        115   120   125

Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu
    130   135   140

Ala Thr Ala Thr Pro Pro Gly Ser Gly Met Phe Asp Ser Ser Val Leu
145   150   155   160

Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala
                165   170   175

Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu Pro
            180   185   190

Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly Leu
        195   200   205

Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly Glu
    210   215   220

Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala
225   230   235   240

Gln

<210> 7
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<212> PRT
<213> Artificial Sequence

<220>
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<210> 8
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<220>
<223> Description of Artificial Sequence: Peptide

<400> 8
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<210> 9
<211> 4

<212> PRT
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<220>
<223> Description of Artificial Sequence: Peptide

<400> 9
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<210> 10
<211> 4
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<220>
<223> Description of Artificial Sequence: Peptide

<400> 10
Ser Lys Gly Glu
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<210> 11
<211> 4
<212> PRT
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<220>
<223> Description of Artificial Sequence: Peptide

<400> 11
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<210> 12
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide

<400> 12
Arg Asn Asn Gln
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<210> 13
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide

<400> 13
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<210> 14
<211> 4
<212> PRT
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<220>
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1

<210> 15
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
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<210> 16
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
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<400> 16
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